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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/650,551 | 08/30/2000 | David J. McElroy | 303.615US1 | 1374 |

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EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Appli cation No.

09/650,551

Applicant(s)

MCELROY ET AL

Examiner

Thanh X Luu

Art Unit

2878

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-21 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) 27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-21 and 32-37 is/are allowed.
- 6) ☒ Claim(s) 7-12, 28-31 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to amendments and remarks filed June 4, 2002.

Claims 7-21 and 27-38 are currently pending.

Examiner notes that Applicant has not cancelled claim 27. It appears that Applicant has mistakenly omitted canceling claim 27 in the amendment. Page 1 of the June 4, 2002 amendment states "Please cancel claims 1-6 and 22-26..."

Claim 27 should be cancelled since it is drawn to a non-elected invention.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the summation of pixel image signals from two group pixels of claims 7-12, 28-31; and two variable gain amplifiers responsive to one aggregate image signal of claim 38 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 7-12, 28-31 and 38, as understood, are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 7-12 and 28-31, it appears that Applicant has failed to describe an embodiment in which pixel image signals from two group pixels are summed. Figure 2 simply shows the summation of signals from one group pixel. Page 3 of the specification describes Figure 2 as a circuit for each group pixel.

Regarding claim 38, it appears that Applicant has failed to describe an embodiment in which two variable gain amplifiers are responsive to one aggregate image signal and two gain controllers for outputting the same gain.

In response, Applicant should cite to specific pages of the specification that provide support for such embodiments. Otherwise, Examiner reminds Applicant that no new matter may be added.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7-12, 28-31 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 7 and 10, it is unclear in its given context how many signals are summed. That is, if two or more pixel image signals are supplied from a first and a second group pixel, there would be four or more pixel image signals summed. As

claimed, it is unclear which two pixel image signals (from which group pixel) are summed? Or are the pixel image signals from both group pixels summed?

Regarding claim 12, "the variable-gain amplifier" lacks proper antecedent basis.

Regarding claim 30, "the same color light" lacks proper antecedent basis.

Furthermore, it is unclear how a color light is functionally related to the rest of the invention.

Regarding claim 38, line 6 and lines 11-12, it is unclear in its given context which summer, "the summer" refers to.

Claims 8-9, 11, 28, 29 and 31 are indefinite by virtue of their dependency on an indefinite claim.

Claim Rejections - 35 USC § 103

6. Claims 10-12, 30 and 31, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fazekas (U.S. Patent 5,635,700).

Regarding claims 10, 12, 30 and 31, Fazekas discloses (see Figure 5) an imaging system, comprising: a first group pixel comprising two (76 and 78) or more photodetectors for providing two or more corresponding pixel image signals; and a summer (90) responsive to two or more of the corresponding pixel image signals for outputting an aggregate image signal. Fazekas further disclose (see Figure 5) an amplifier (82). Fazekas also disclose (see column 3, lines 29-31) each photodetector has the same specifications. Thus, each photodetector is tuned to detect substantially a same color light. An address and signal light is inherently coupled to each photodetector. Fazekas does not specifically show a second group pixel with two or

more photodetectors. However, Fazekas further teaches (see column 3, lines 46-57) that the apparatus preferably has two to four photodetectors. Fazekas further recognizes that the performance of the apparatus would be increased with more photodetectors. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a second group pixel with two or more photodetectors and to sum those signals in the apparatus of Fazekas to improve detection as taught.

Regarding claim 11, Fazekas disclose the claimed invention as set forth above. Fazekas does not specifically disclose the summer is a digital summer. However, Fazekas further teaches (see column 3, lines 60-65) converting analog signals from the photodetectors into digital signals. Further, it is notoriously well known in the art that digital signals are more robust than analog signals. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a digital summer in the apparatus of Fazekas to handle the converted digital signals and to improve detection by providing a digital operation that is more resistant to noise.

7. Claims 7-9, 28 and 29, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (U.S. Patent 3,906,389).

Regarding claims 7 and 29, Matsumoto et al. disclose (see Figure 1) an imaging system comprising: a group pixel comprising two photodetectors (PD1, PD2) for providing two corresponding pixel image signals; a summer (AA) responsive to the two signals for outputting an aggregate image signal; a variable-gain amplifier (AS) responsive to the aggregate image signal for outputting an amplified aggregate image

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signal based on an adjustable amplifier gain; and an automatic gain controller (D) for adjusting the adjustable amplifier gain based on the aggregate image signal or the amplified aggregate image signal. That is, the amplified aggregate image signal comprises the aggregate image signal. The lines connected to the photodetectors act as address and signal lines. Matsumoto et al. does not specifically disclose a second group pixel providing two other pixel image signals. However, Matsumoto et al. further teach (see column 2, lines 4-11 and Figure 1) a taking objective (TL) for photographic imaging. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide an additional group pixel or image sensor at the taking objective of Matsumoto et al. to capture a digital image for improved photographic quality.

Regarding claims 8 and 9, Matsumoto et al. disclose the claimed invention as set forth above. Matsumoto et al. do not specifically disclose a digital summer or a digital amplifier. However, it is notoriously well known in the art that digital signals are more robust than analog signals. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a digital summer and a digital amplifier in the apparatus of Matsumoto et al. to provide more noise resilient signals and improve detection.

Regarding claim 28, Matsumoto et al. disclose the claimed invention as set forth above. Matsumoto et al. do not specifically disclose that the photodetectors of the first group pixel detect substantially the same color light. However, Matsumoto et al. teaches detecting a focus. It would have been obvious to a person of ordinary skill in

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the art at the time the invention was made to provide photodetectors have the same responses in the apparatus of Matsumoto et al. to provide more accuracy and simplicity in the focus detection. That is, having photodetectors with different color responses would complicate focus detection.

Allowable Subject Matter

8. Claims 13-21 and 32-37 are allowed over the prior art of record.
9. Claim 38 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first and second paragraphs, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claim 10 have been considered but are moot in view of the new ground(s) of rejection.
11. Applicant's arguments filed June 4, 2002 have been fully considered but they are not persuasive. Regarding claim 7, Applicant's claim of a second group pixel would have been obvious as set forth above, since it appears that only signals from the first group pixel is amplified and summed. That is, simply providing a second group pixel or an additional image sensor that outputs signals that are not summed or processed require only routine skill in the art.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached on (703) 308-4881. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
August 28, 2002


Que T. Le
Primary Examiner